State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #_____
HRI #_____
Trinomial_____
NRHP Status Code_____
Other Listings_____
Review Code_____ Reviewer_____ Date_____

 Resource name(s) or number(assigned by recorder) N-237

P1. Other Identifier: Ames Projects & Program Office; Hypervelocity Free-Flight Facility
***P2. Location:** ☒Not for Publication ☐Unrestricted ***a. County** Santa Clara
***b. USGS 7.5' Quad** San Francisco North, Calif. **Date:** 1995
***c. Address** 350 Bushnell Street **City** Moffett Field **Zip** 94035
***e. Other Locational Data:**

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries.)

Building N-237 is a two-story office and laboratory building with a concrete foundation, flat roof, and exposed concrete exterior. Rendered in a Modern architectural style, this building has two distinct areas: a one-story scored concrete warehouse to the north and a two-story brick and concrete office to the south. The warehouse portion features a scored concrete exterior and steel overhead doors along the east façade. The south façade of the office portion features brick accent walls and ribbon windows with a concrete shelf above. At the northeast corner of the building is a brick garden wall, which conceals exterior mechanical equipment. This facility has been used to conduct research on gas dynamic problems of hypervelocity flight, particularly atmosphere re-entry problems. It is 60,380 sq. ft.

See Continuation Sheets for technical description.

This building appears to be in good condition.

***P3b. Resource Attributes:** (list attributes and codes) HP39 – Other: Research and laboratories

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other

P5a. Photo

P5b. Photo: (view and date)
View of west façade (08/04/05)

***P6. Date Constructed/Age and Sources:** 1964

***P7. Owner and Address:**
United States of America as represented by National Aeronautics and Space Administration (NASA)

***P8. Recorded by:**
Page & Turnbull, Inc.
724 Pine Street
San Francisco, CA 94108

***P9. Date Recorded:** 08/04/05

***P10. Survey Type:**
Reconnaissance

***P11. Report Citation:** National Aeronautics and Space Administration, *Technical Facilities Catalog*, Volume 1, publication NHB 8800.5A (1), October 1974; Technical Information Division, Ames Research Center, *Ames Research Facilities Summary,* 1974; Donald D. Baals and William R. Corliss, *Wind Tunnels of NASA,* NASA SP-440, 1981.

***Attachments:** ☐None ☐Location Map ☐Sketch Map ☒Continuation Sheet ☐Building, Structure, and Object Record
☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record
☐Artifact Record ☐Photograph Record ☐ Other (list)

8. HYPERSONIC FREE-FLIGHT AERODYNAMIC FACILITY

DESCRIPTION:

The Hypersonic Free-Flight Aerodynamic Facility is used for research on gas dynamic problems of atmospheric entry. High relative speeds are achieved by launching models (in sabots if necessary) from high-speed guns into a countercurrent hypersonic air stream (14,000 ft/sec) driven by combustion-powered shock tube. Parameters derived from observations of model flights include lift, drag, static and dynamic stability, flow characteristics (including absolute spectral emissive power of shock layers and wakes), and model ablation. Models up to 37 mm in diameter and weighing 45 grams maximum can be accommodated. Shadowgraphs can be obtained at sixteen stations spaced every five feet along the test section.

PERFORMANCE:

Stream Mach Number	7.0
Stream Enthalpy	4,000 BTU/lb., maximum
Reynolds number	80×10^6 per ft., maximum
Stream static pressure	0.005 to 0.2 atmospheres
Model speed	30,000 ft/sec maximum
Model launching acceleration	1.5×10^6 g, maximum

DIMENSIONS:

Length	75.0 feet
Diameter	3.5 feet

STATUS:

Operational since 1965

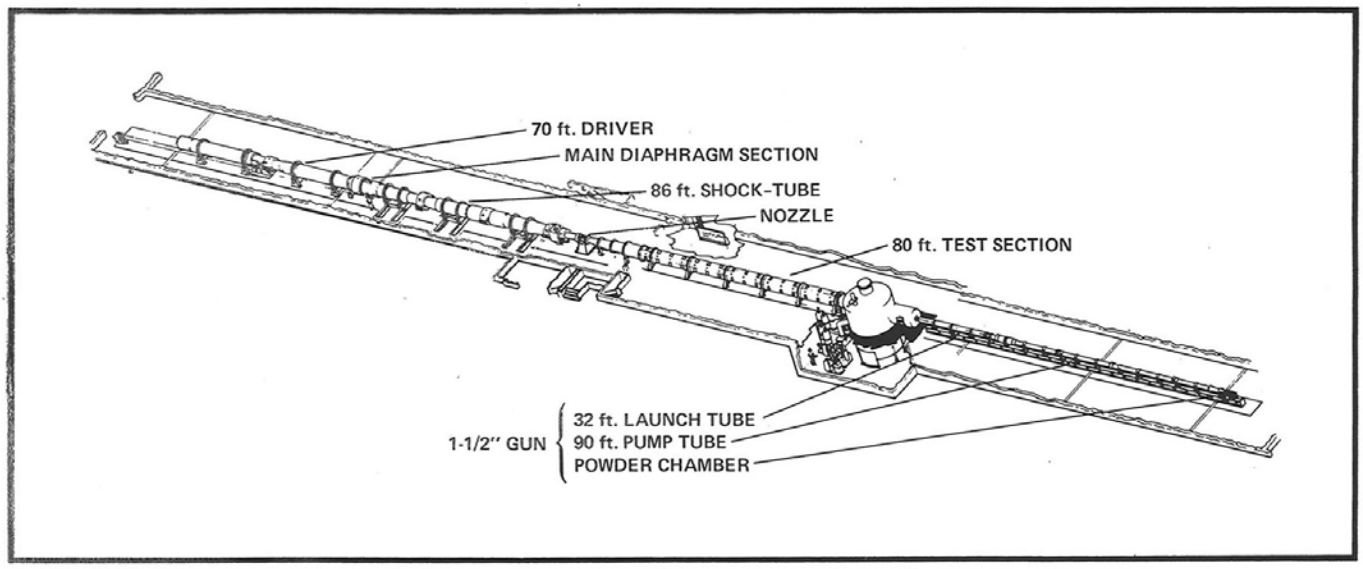
JURISDICTION:

Flight Project Development Division
Systems Development Branch
Thomas N. Canning

LOCATION:

Building N-237

N-237


70 ft. DRIVER
MAIN DIAPHRAGM SECTION
86 ft. SHOCK-TUBE
NOZZLE
80 ft. TEST SECTION
1-1/2" GUN
32 ft. LAUNCH TUBE
90 ft. PUMP TUBE
POWDER CHAMBER